FLORENCE COPPER

FLORENCE COPPER INC.
1575 W. Hunt Highway, Florence, Arizona 85132 USA
florencecopper.com

December 17, 2020

Ms. Nancy Rumrill
U.S. Environmental Protection Agency, Region 9
Drinking Water Protection Services, WTR-3-2
75 Hawthorne Street
San Francisco, California 94105

Re: Transmittal of Supplemental Information in Support of Application for Underground Injection Control Permit, Florence Copper Project, Florence, Arizona

Dear Ms. Rumrill:

Pursuant to our telephone conversations on December 10, 15, and 17, 2020, Florence Copper Inc. (Florence Copper) herewith transmits supplemental information in support of our application for an Underground Injection Control (UIC) Permit submitted to the U.S. Environmental Protection Agency (USEPA) on October 4, 2019 (Application). This information reflects our understanding of, and response to, questions the USEPA has regarding previously submitted Application materials.

Each of the sections below begins with our stated understanding of the additional information required by the USEPA, followed by our response, which includes references to the attached materials.

Request 1:

The USEPA requested additional information regarding operational procedure and monitoring associated with simultaneous operation of active ISCR wells and rinsing ISCR wells in adjacent wellfield areas. Specifically, USEPA asked how Florence Copper will evaluate performance of rinsing and ISCR operations with a buffer of two rows of wells between the two operations, and how Florence Copper will determine if additional rows of wells are needed in the buffer area.

Response 1:

During the life of the planned ISCR wellfield, there will be periods when rinsing is ongoing in areas that are adjacent to active ISCR operations. In these instances, Florence Copper will continue to maintain hydraulic control at the perimeter of the active ISCR wellfield, which includes both areas undergoing active copper recovery and rinsing. Hydraulic control will be maintained of both rinsing and active production areas throughout the life cycle of the ISCR wellfield.

Florence Copper will closely manage the buffer zones between rinsing areas and active copper recovery areas to ensure that both processes continue without excessive interference. This management strategy includes the use of one or more rows of resting wells, and/or injection of fresh water between the active copper recovery areas and the rinsing area. The resting wells will be those that are near the end of the

active leaching cycle, that are periodically pumped to recover solution, and that are being prepared for inclusion in the next rinsing group.

Florence Copper will collect monthly samples from the resting wells to evaluate changes in water quality and solution chemistry at those locations. The monthly samples will be analyzed for the quarterly monitoring constituents listed in the UIC permit. It is important to note that dissolved constituent concentrations may increase between pulsing cycles due to passive diffusion of mineral and metal residual. Florence Copper will pump these wells periodically (pulse) to purge residual dissolved constituents but will not inject raffinate in these wells while they serve as buffer wells. If monthly monitoring of these wells indicates that full-strength raffinate is migrating through the buffer zone toward the rinsing area, Florence Copper will inject fresh water into selected buffer wells to balance the hydraulic influence of each zone and advance the rinsing process. The buffer wells used for freshwater injection will be selected based on monthly monitoring results. Injection of fresh water, as necessary, at the interface between active copper recovery and rinsing operations will provide physical and hydraulic separation between these two processes.

If monthly monitoring indicates that full-strength raffinate is migrating from the active ISCR wellfield into the rinsing area after freshwater injection has been implemented, Florence Copper will evaluate the need for one or more additional rows of buffer wells between the active ISCR area and the rinsing area to ensure rinsing progress is not impacted by ongoing ISCR operations. All of the wells actively undergoing ISCR operations, rinsing, and resting will be located within the hydraulic control perimeter.

Request 2:

The USEPA requested additional information regarding the planned wellfield progression sequence shown in Figure A-2, relative to the planned rinsing sequence shown in Figure A-20.

Response 2:

The planned wellfield progression sequence is shown on Figure A-2 of the UIC application. The typical configuration of active rinsing and active ISCR areas of the wellfield are shown on Figure A-20. Figure A-20 also reflects the general wellfield configuration during the first rinsing period. As shown on Figure A-20, Florence Copper plans to begin rinsing at the down gradient edge of the wellfield, and work in the up gradient direction as rinsing progresses. This strategy will ensure that the rinsing operation can draw fresh groundwater in from the down gradient edge of the wellfield to maintain hydraulic control.

The average leaching period for a typical ISCR well is approximately 4 years. However, depending on the productivity of the wells some will be in service for periods longer or shorter than 4 years. The rinsing configuration shown on Figure A-20 reflects the differential service life of the ISCR wells and shows that the earliest wells rinsed are those planned for construction during years 5 and 6 of ISCR operations. In effect, this shows that the wells constructed in years 1 through 4 will remain active until the wells constructed in years 5 and 6 are ready to begin rinsing. Once rinsing begins, it will progress toward the southeast of the side wellfield in the direction of up-gradient groundwater flow.

It is important to note that both ISCR operations and rinsing will occur within the hydraulic control area, and that the sequence of wellfield progression and rinsing will be adapted to reflect operational conditions. Florence Copper will provide an update of the wellfield configuration and planned development sequence for the coming year on an annual basis.

Request 3:

The USEPA requested clarification regarding details included in the revised Attachment C of the UIC Application. USEPA asked for information regarding the grade of stainless steel used in the planned well casing centralizers, information regarding down-hole instrumentation planned for use at the observation wells, and clarification regarding the planned suite of down-hole geophysical logs to be run following well completion.

Response 3:

Attachment C of the UIC Application has been revised to provide the requested additional clarification requested by USEPA. The Attachment C revisions include:

Section C.2.2, *Casing Centralizers*, was updated to reflect the fact that grade 316 stainless steel will be used for casing centralizers.

Section C.2.5, *Annular Conductivity Device*, was updated to reflect the fact that the early warning ACDs will be installed on 10 percent of the ISCR wells designated for injection use when the wells are commissioned. As wellfield development progresses, the injection wells will transition to use as recovery wells, and recovery wells will transition to use for injection.

Section C.2.6, *Pressure Transducers*, was updated to reflect the fact that fluid conductivity will be monitored at the observation wells using and electronic sensor, and that the sensor may be a combined unit that includes the pressure transducer or may be a separate sensor depending on the model of equipment used.

Section C.3.7, *Cased Hole Geophysics*, was updated to include the full list of geophysical logs planned to be run in each ISCR well after completion. The geophysical logs include:

- Sonic (for cement bond with fiberglass reinforced pipe [FRP]);
- 4 pi density (for cement bond with FRP);
- Dual density (for cement bond with FRP);
- Natural gamma;
- Fluid conductivity;
- Temperature;
- Nuclear magnetic resonance;
- Dual induction; and
- Gyroscopic deviation.

The pre-injection temperature logs will serve as a baseline for later casing integrity analyses. Temperature logs will be run on newly constructed injection wells at 30 days and 60 days after injection has begun.

The revised Attachment C is transmitted herewith.

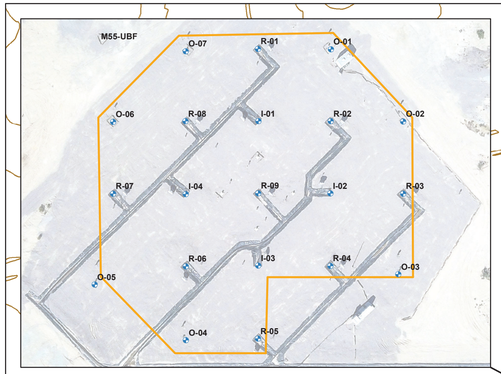
Please contact me at 520-316-3710 if you require any additional information.

Sincerely,
Florence Copper Inc.

Brent Berg
General Manager

cc: Maribeth Greenslade, Arizona Department of Environmental Quality

Enclosures
Attachment C
Figure A-2 – Planned Wellfield Development Sequence
Figure A-20 – Typical Hydraulic Control During Rinsing with Active Leaching Ongoing



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YEAR 6
YEAR 8
YEAR 9
YEAR 5
YEAR 11
YEAR 10
YEAR 7
YEAR 4
YEAR 1
YEAR 2
YEAR 8
YEAR 1
YEAR 3
YEAR 11
YEAR 12
YEAR 2
YEAR 14
YEAR 13
YEAR 14
YEAR 15
YEAR 16

PTF WATER IMPOUNDMENT
PTF PROCESSING AREA
PROPOSED PROCESSING AREA
PROPOSED PLS POND
EXISTING WATER IMPOUNDMENT
PROPOSED WATER IMPOUNDMENT 5
PROPOSED WATER IMPOUNDMENT 4

GIS FILE PATH: G:\Projects\Florence Copper\132473 Florence Groundwater Permitting\GIS\Maps\2019_07\132473_005_0042_PLANNED_CLASS_III_WELL_LOCATIONS.mxd — USER: khensen — LAST SAVED: 9/1/2020 3:31:21 PM

LEGEND

- PTF CLASS III WELL
- 045 RESOURCE BLOCK NUMBER
- UNDERGROUND WORKING
- 100 YEAR FLOOD PLAIN
- 10 FOOT TOPOGRAPHIC CONTOUR
- PROPOSED WATER IMPOUNDMENT
- PTF WATER IMPOUNDMENT
- PTF PROCESSING AREA
- PROCESSING AREA
- ISCR WELL FIELD
- PROPOSED AOR / FORMER BHP AOR
- AQUIFER EXEMPTION BOUNDARY
- STATE MINERAL LEASE BOUNDARY
- FLORENCE COPPER PROPERTY BOUNDARY

DEVELOPMENT SEQUENCE

- YEAR 1
- YEAR 2
- YEAR 3
- YEAR 4
- YEAR 5
- YEAR 6
- YEAR 7
- YEAR 8
- YEAR 9
- YEAR 10
- YEAR 11
- YEAR 12
- YEAR 13
- YEAR 14
- YEAR 15
- YEAR 16

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. TOPOGRAPHY DATA BY FLORENCE COPPER, OCTOBER 2010. 10-FOOT INTERVALS SHOWN.

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SCALE IN FEET

HALEY ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA 85132

PLANNED WELLFIELD DEVELOPMENT SEQUENCE

FLORENCE COPPER

SEPTEMBER 2020

FIGURE A-2

RINSING ISCR WELLS

RESTING/FRESHWATER INJECTION ISCR WELLS

ACTIVE ISCR WELLS

1490

1480

1470

1460

1450

LEGEND

- INJECTION/ RECOVERY WELL
- OBSERVATION WELL
- PERIMETER WELL
- RESTING WELL
- PTF CLASS III WELL
- RESOURCE BLOCK
- UNDERGROUND WORKING
- 100 YEAR FLOOD PLAIN
- TOPOGRAPHIC CONTOUR (10-FT INTERVAL)
- ISCR WELL FIELD
- PROPOSED AOR / FORMER BHP AOR
- FLORENCE COPPER PROPERTY BOUNDARY
- STATE MINERAL LEASE BOUNDARY
- AQUIFER EXEMPTION BOUNDARY

RINSING AREAS A-D

- A
- B
- C
- D

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. TOPOGRAPHY DATA SOURCE: FLORENCE COPPER, OCTOBER 2010.

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HALEY ALDRICH

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FLORENCE, ARIZONA

TYPICAL HYDRAULIC CONTROL DURING RINSING WITH ACTIVE LEACHING ONGOING

OCTOBER 2020

FIGURE A-20